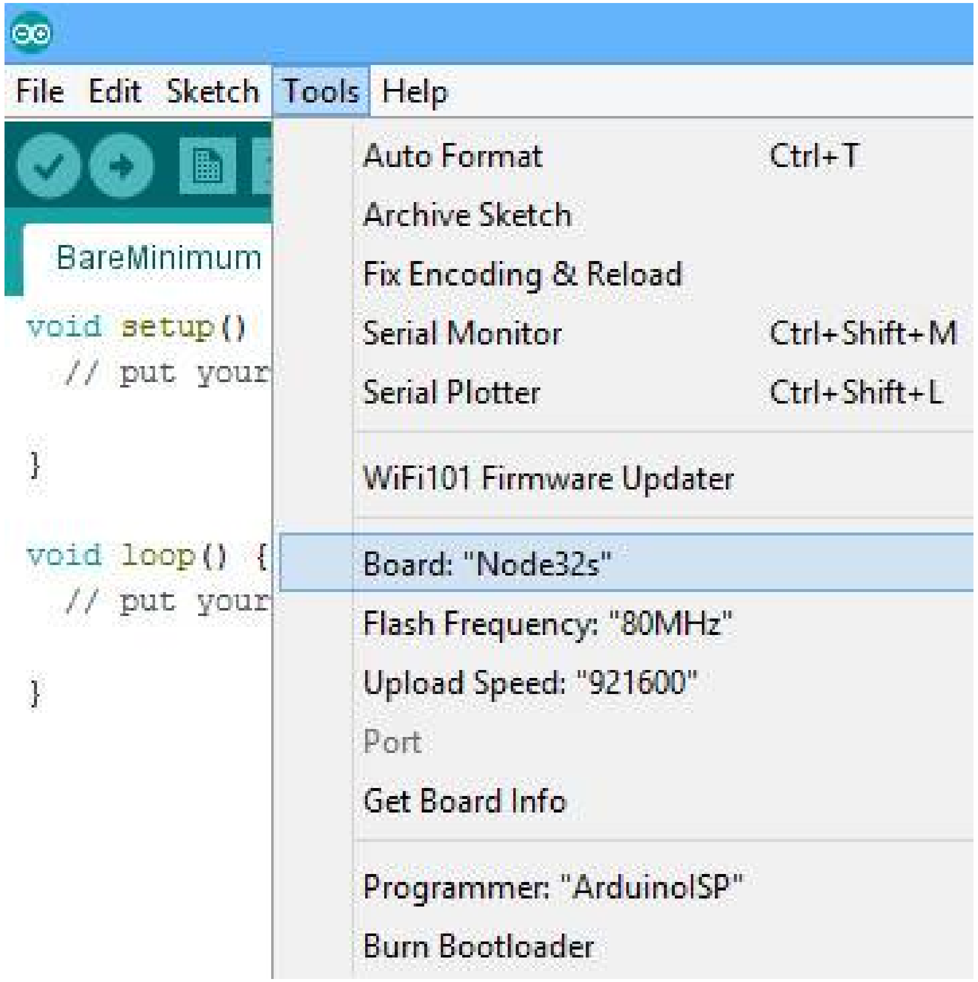
https://www.facebook.com/lamloeicom

Tools > Board: “Node32s”



Board: "Node32s"

Flash Frequency: "80MHz"

Upload Speed: "921600"

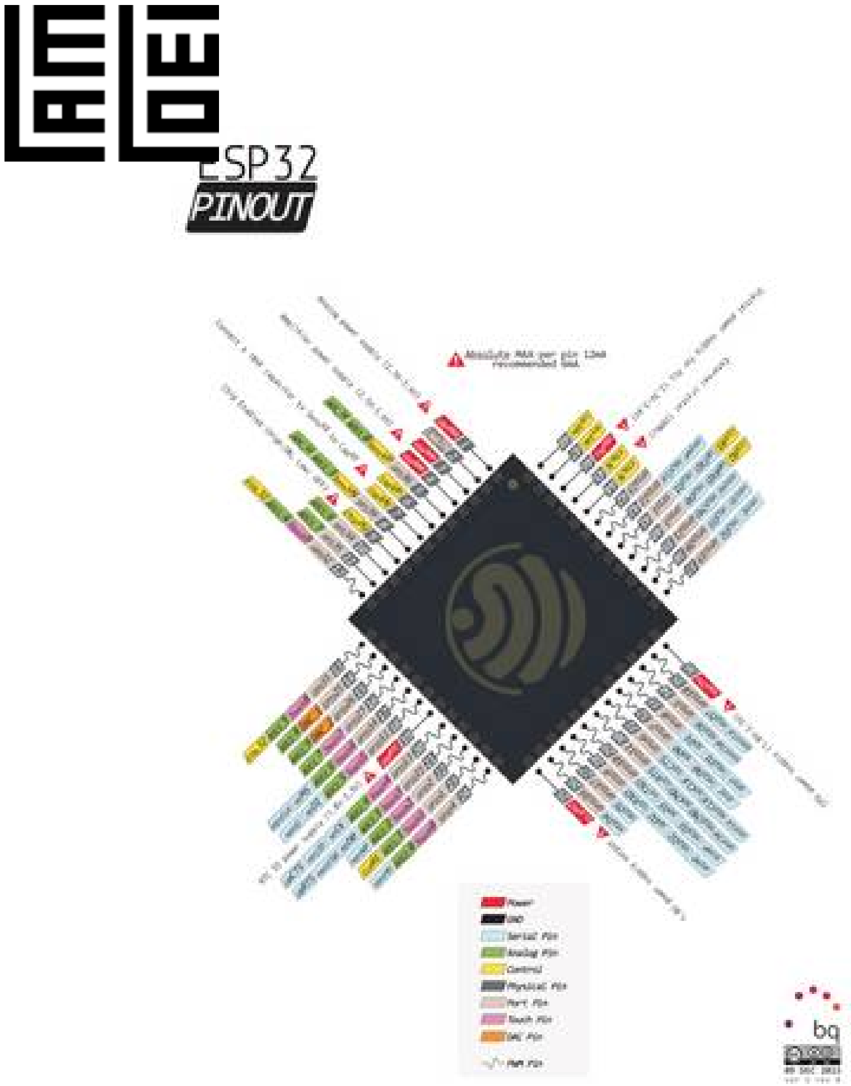
Programmer: "ArduinoISP"

```
void setup()
  // put your

}

void loop() {
  // put your

}
```

https://espressif.com/

ESP32 Wi-Fi + Bluetooth Combo Chip

An ultra low power and complete integration solution



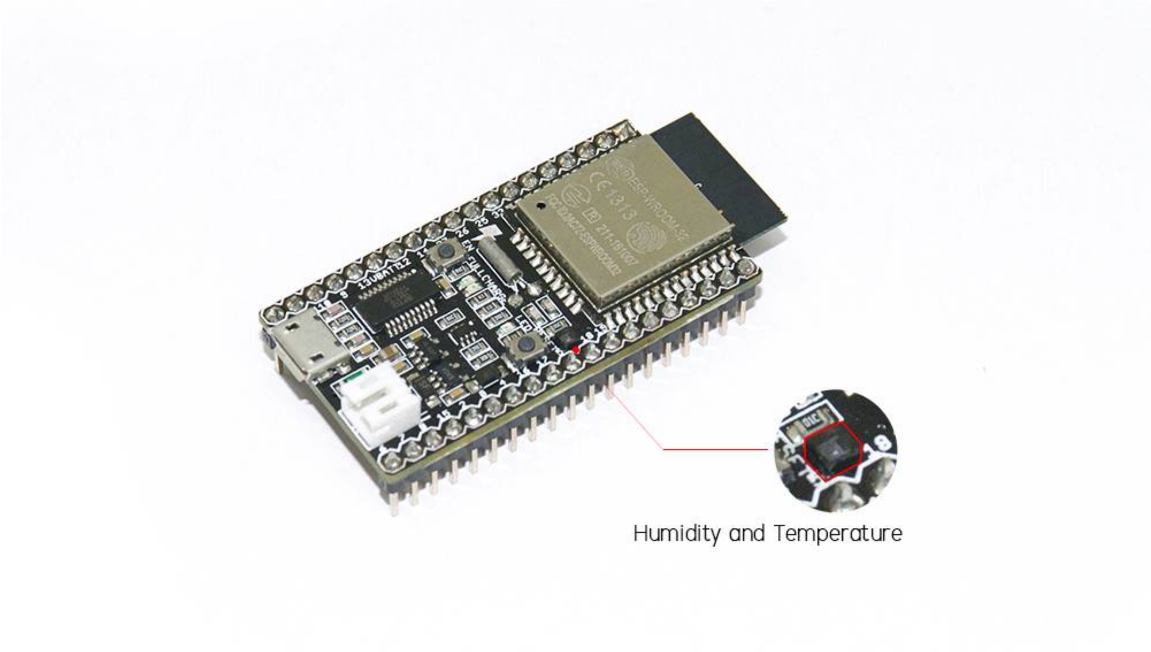
โมดูล ESP-32s

โมดูล ESP-WROOM32

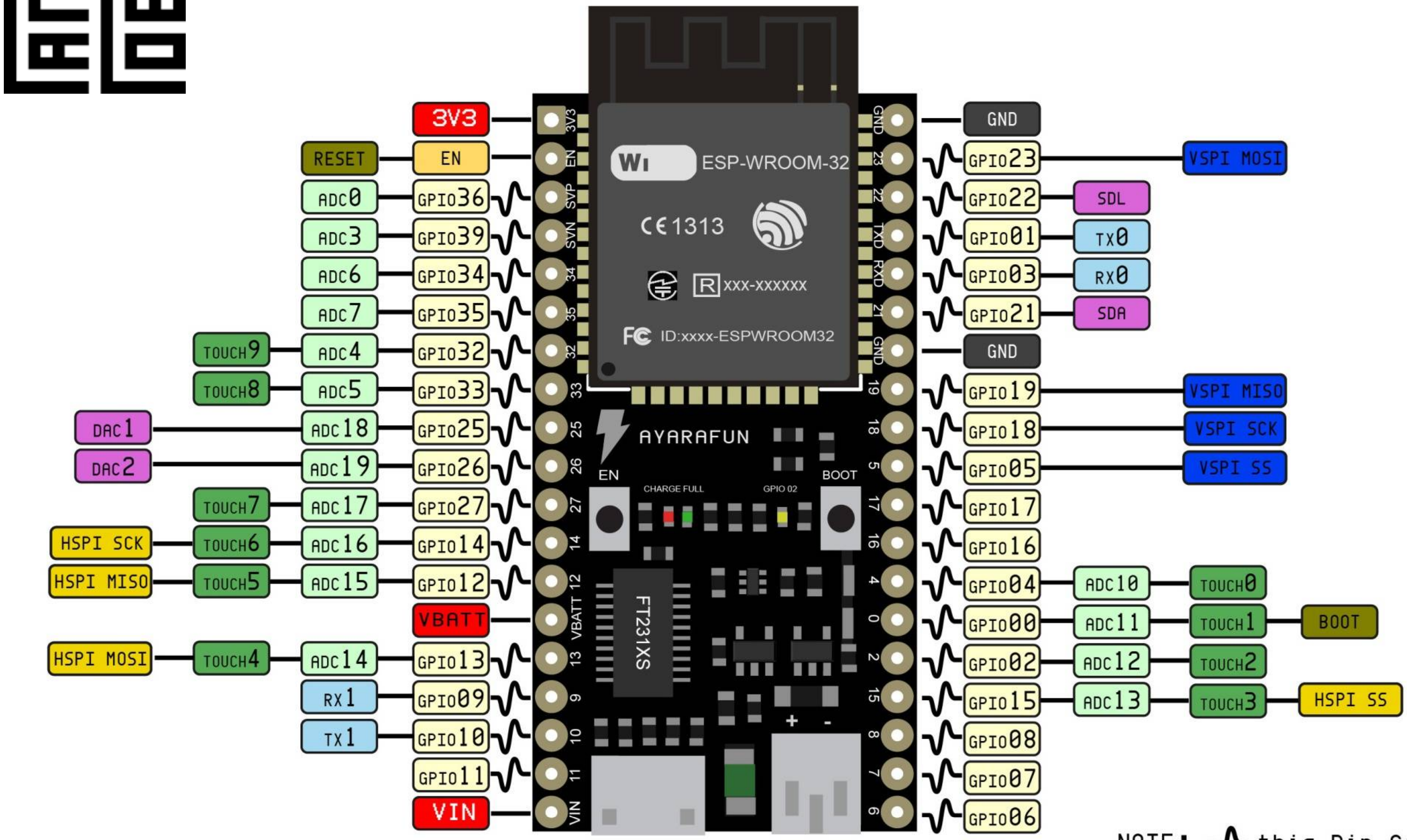
ESP32 FEATURE

- Xtensa® Dual-Core 32-bit LX6 microprocessors, up to 600 DMIPS clock up to 240 MHz
- 802.11 b/g/n/e/I (2.4 GHz), up to 150 Mbps
- Bluetooth v4.2 BR/EDR and BLE
- RTC timer
- 12-bit SAR ADC up to 18 channels
- 2 × 8-bit D/A converters
- 10 × touch sensors
- QFN48 (6x6 mm)

Node32s Plus vs Node32s



hts221



NODE32S

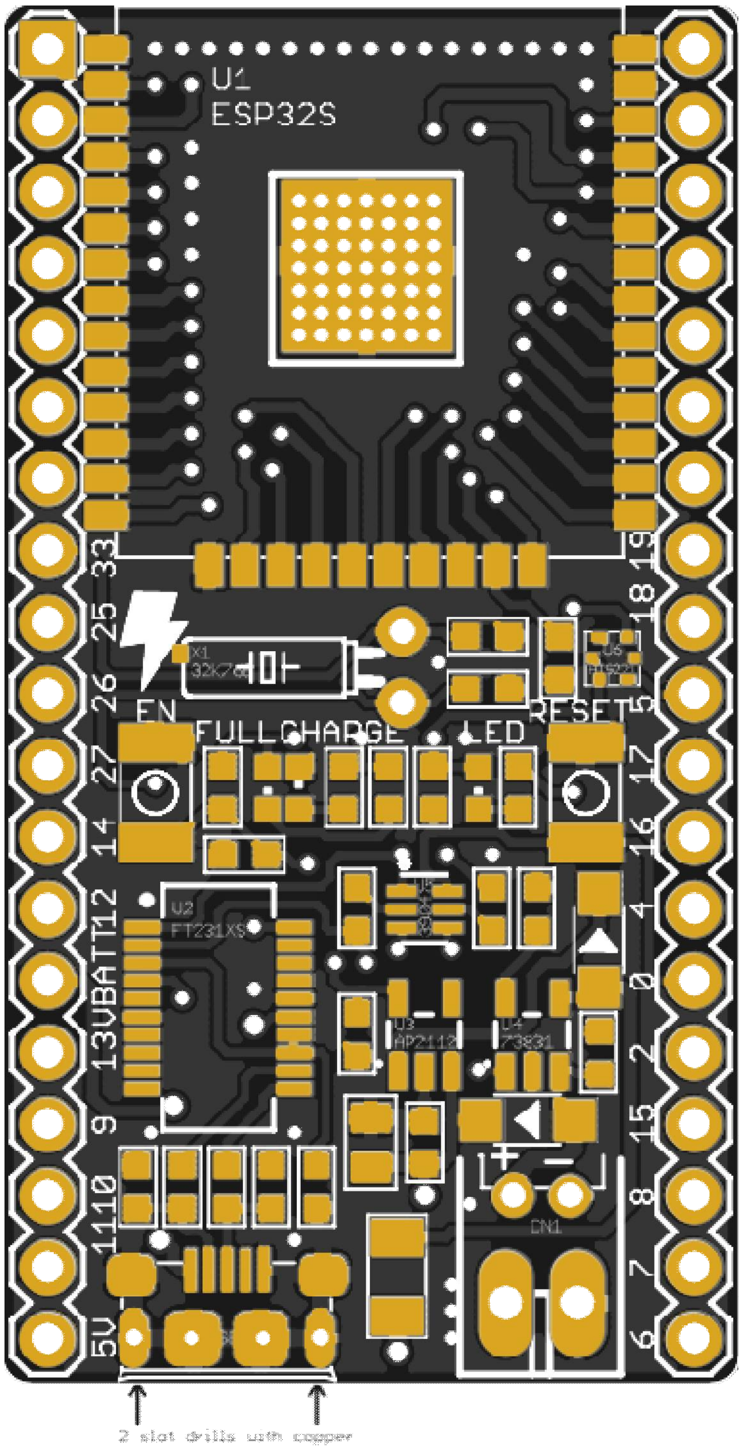
PINOUT

www.ayarafun.com

www.lamloei.com

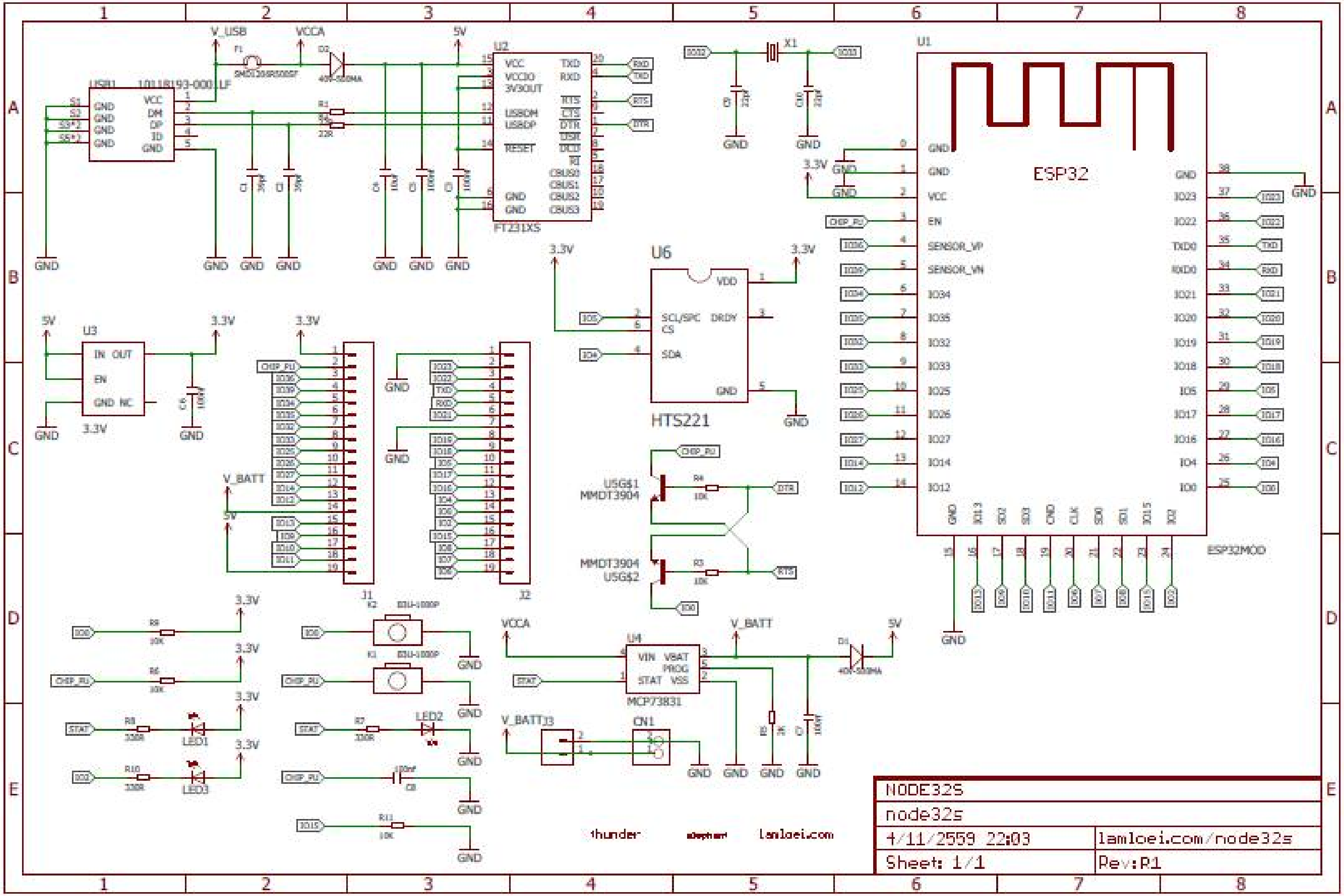
NOTE: √ this Pin Can PWM

1. PINOUT COMPATIBLE WITH ESPRESSIF ESP32 DEV MODULE
2. Charger Current 400mA
3. Use Battery Li-ion LiPo

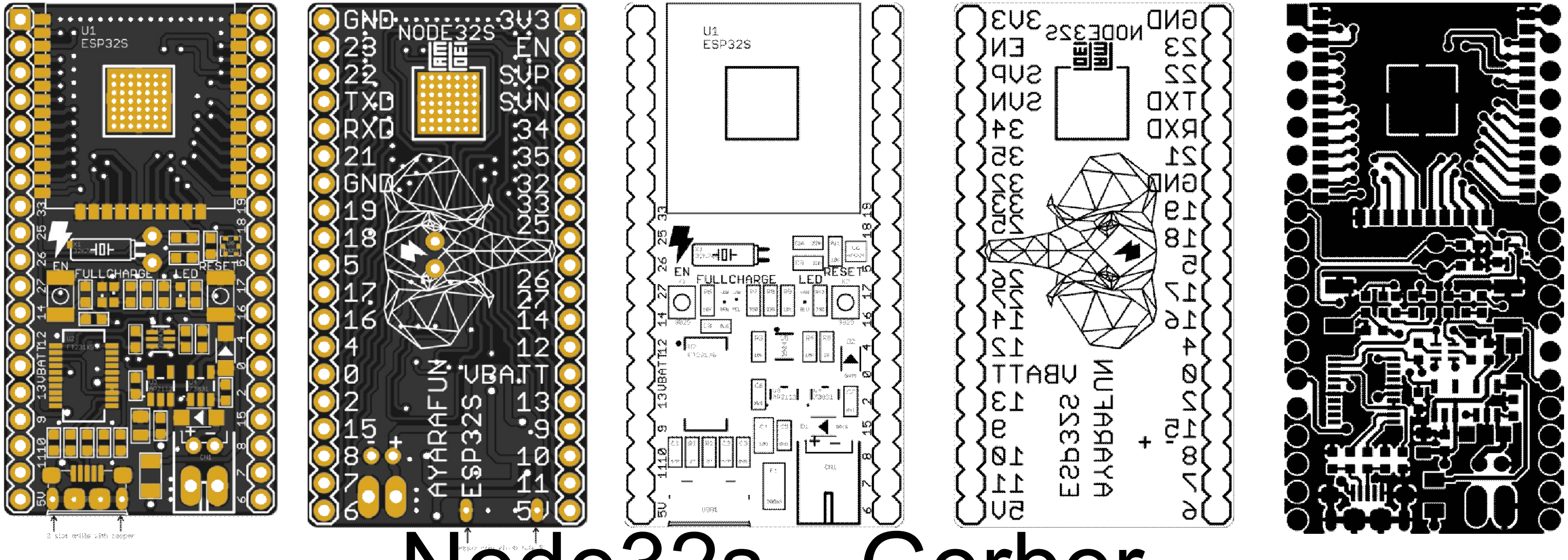


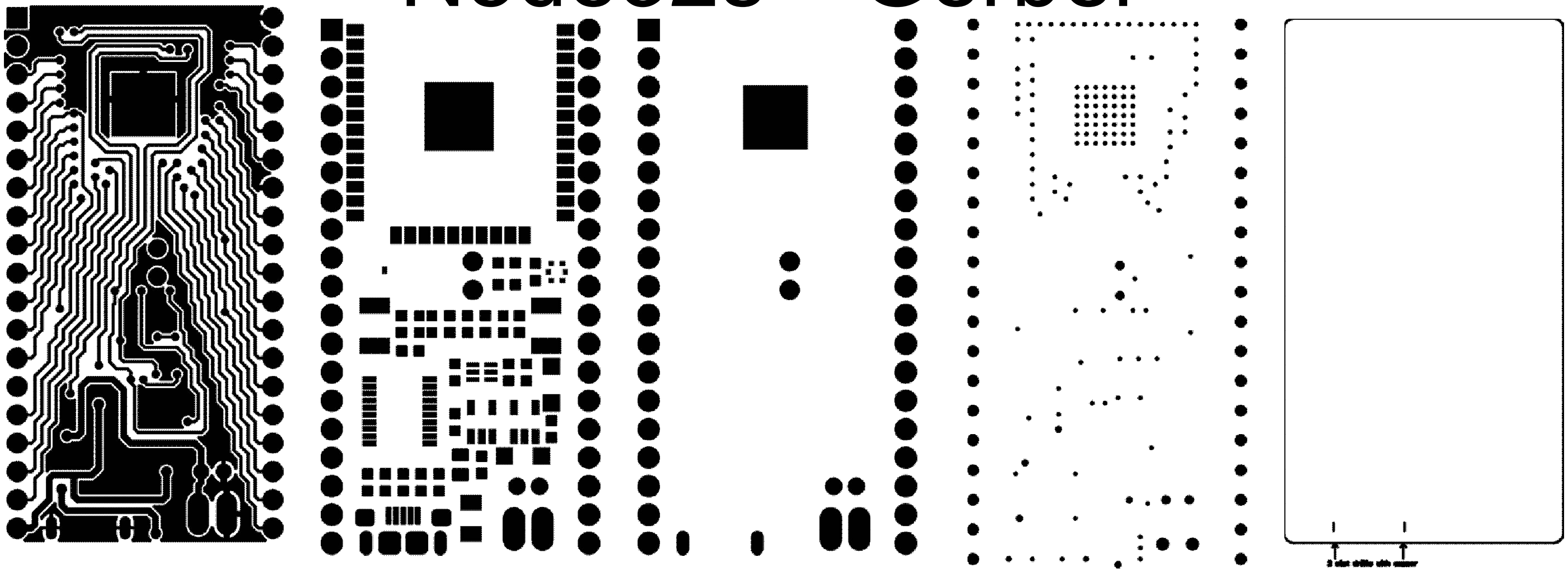
1. รองรับ esp-wroom-32 และ esp-32s
2. กว้างยาว 19 pin * 10 pin
3. JST 2mm 2pin connector
4. PTC Fuse 500mA
5. Micro usb FT231XS
6. Hts221 – temp & humidity
7. Ap2112 – Voltage regulator
8. Mcp73831 – charge battery
9. Mmdt3904 – dual transistor
10. Manual button – EN & io0
11. Crystal 32.768khz 26H

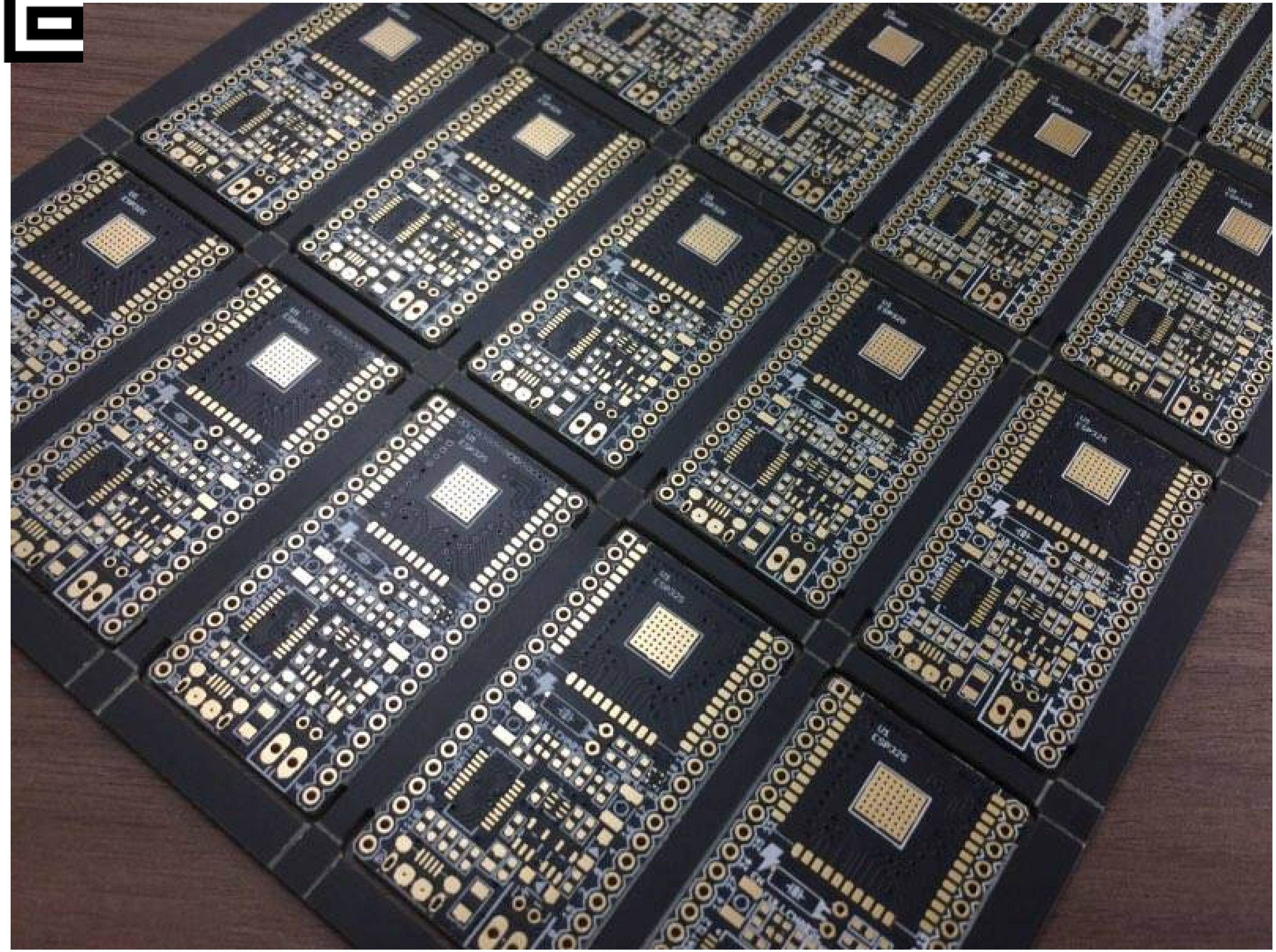
Node32s - Schematic



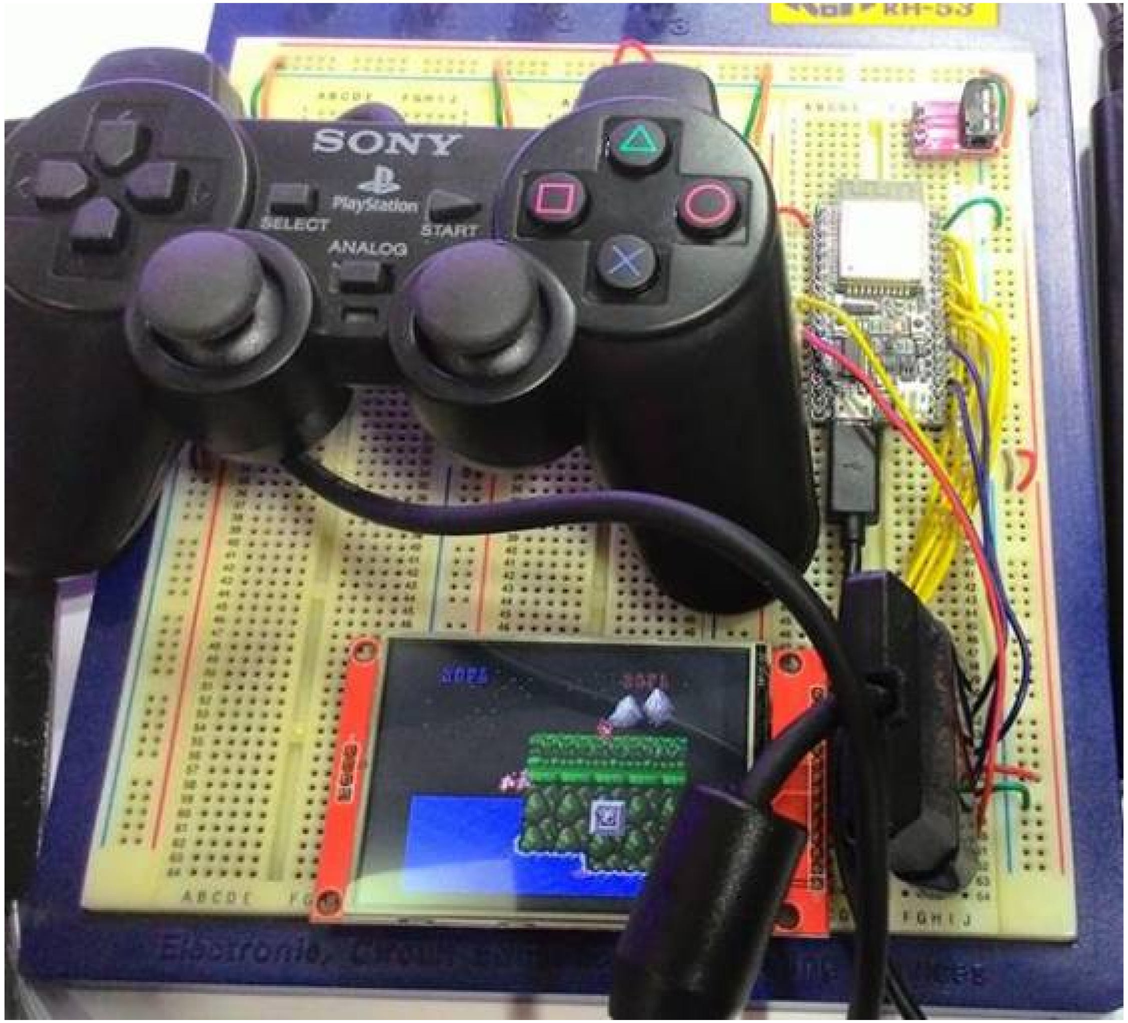
Node32s - Gerber







ESP-NESEMU prototype

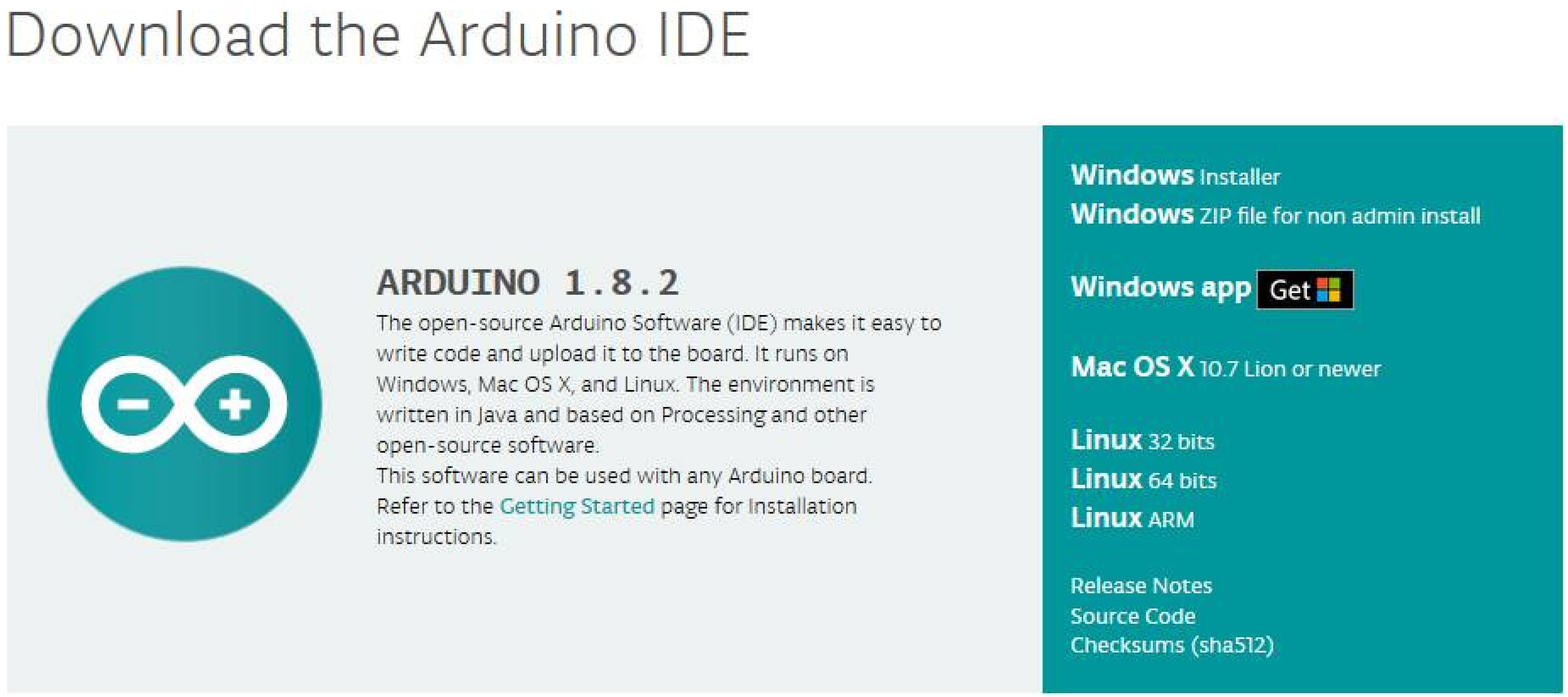


วิธีติดตั้ง

- Install Arduino IDE
- Install Git SCM
- Git GUI, clone, source, target
- get.exe

ดาวน์โหลดไฟล์ที่

https://www.arduino.cc/en/Main/Software



Download the Arduino IDE

ARDUINO 1.8.2

The open-source Arduino Software (IDE) makes it easy to write code and upload it to the board. It runs on Windows, Mac OS X, and Linux. The environment is written in Java and based on Processing and other open-source software.
This software can be used with any Arduino board.
Refer to the Getting Started page for Installation instructions.

Windows Installer
Windows ZIP file for non admin install

Windows app Get

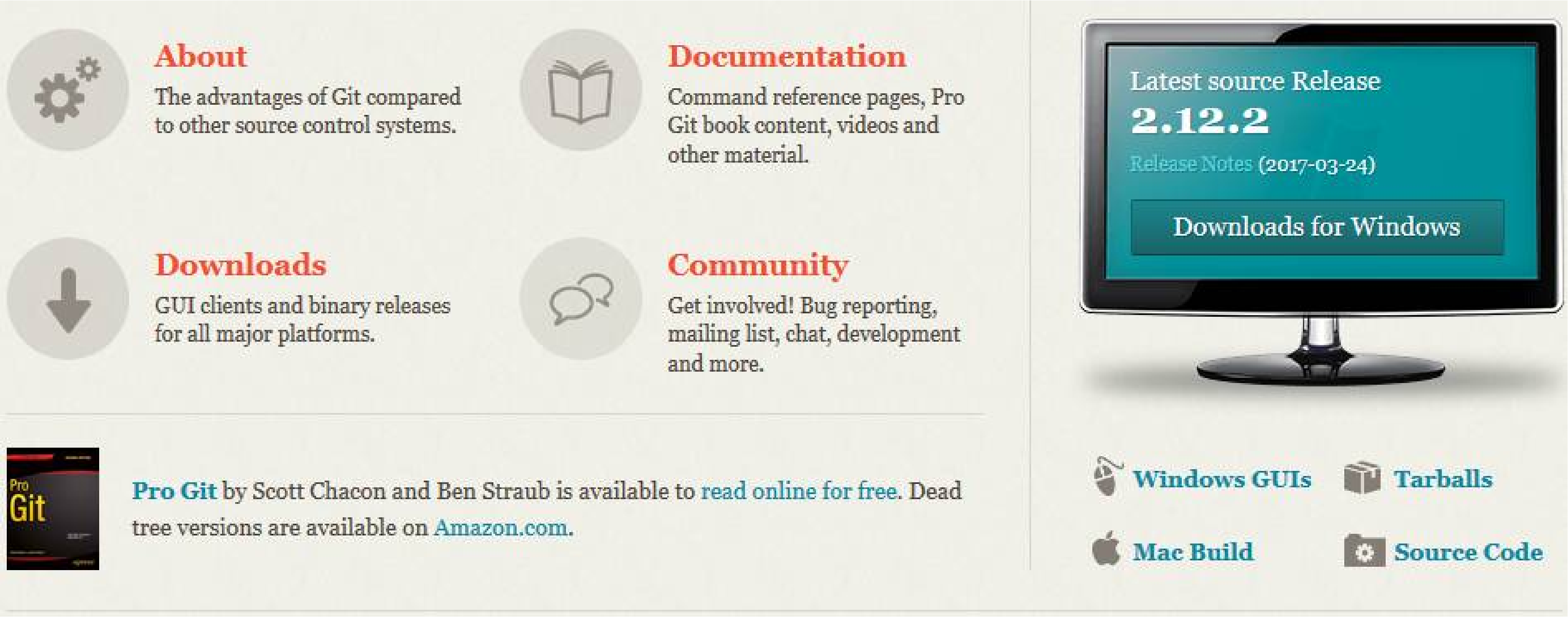
Mac OS X 10.7 Lion or newer

Linux 32 bits
Linux 64 bits
Linux ARM

Release Notes
Source Code
Checksums (sha512)

ดาวน์โหลดไฟล์ที่

https://git-scm.com/



About

The advantages of Git compared to other source control systems.

Documentation

Command reference pages, Pro Git book content, videos and other material.

Downloads

GUI clients and binary releases for all major platforms.

Community

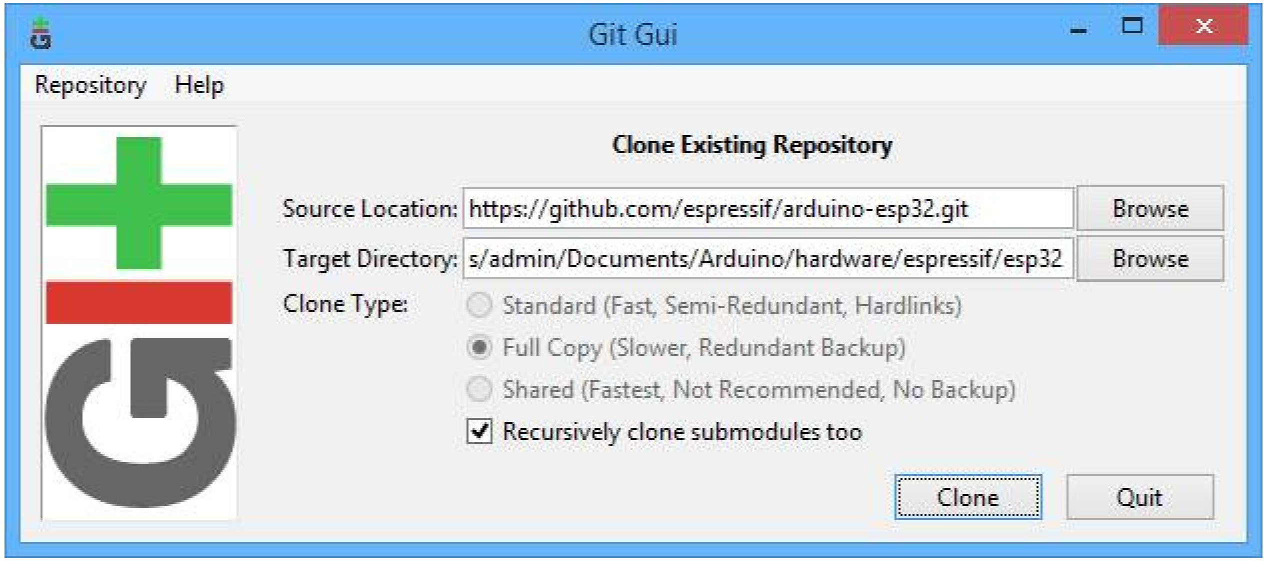
Get involved! Bug reporting, mailing list, chat, development and more.

Pro Git by Scott Chacon and Ben Straub is available to read online for free. Dead tree versions are available on Amazon.com.

Latest source Release

2.12.2

Release Notes (2017-03-24)



Clone Existing Repository

Source Location: https://github.com/espressif/arduino-esp32.git

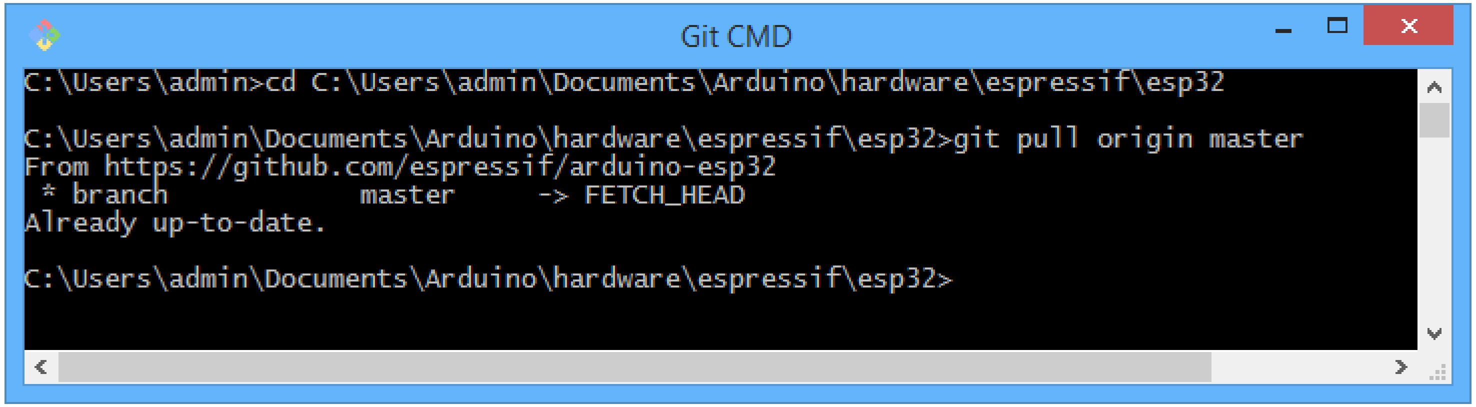
Target Directory: s/admin/Documents/Arduino/hardware/espressif/esp32

Clone Type:
○ Standard (Fast, Semi-Redundant, Hardlinks)
● Full Copy (Slower, Redundant Backup)
○ Shared (Fastest, Not Recommended, No Backup)

☑ Recursively clone submodules too

- Git Gui
- Select Clone Existing Repository
- Source: https://github.com/espressif/arduino-esp32.git
- Target: C:/Users/[YOUR_USER_NAME]/Documents/ Arduino/hardware/espressif/esp32
- Open C:/Users/[YOUR_USER_NAME]/Documents/ Arduino/hardware/espressif/esp32/tools and double-click get.exe

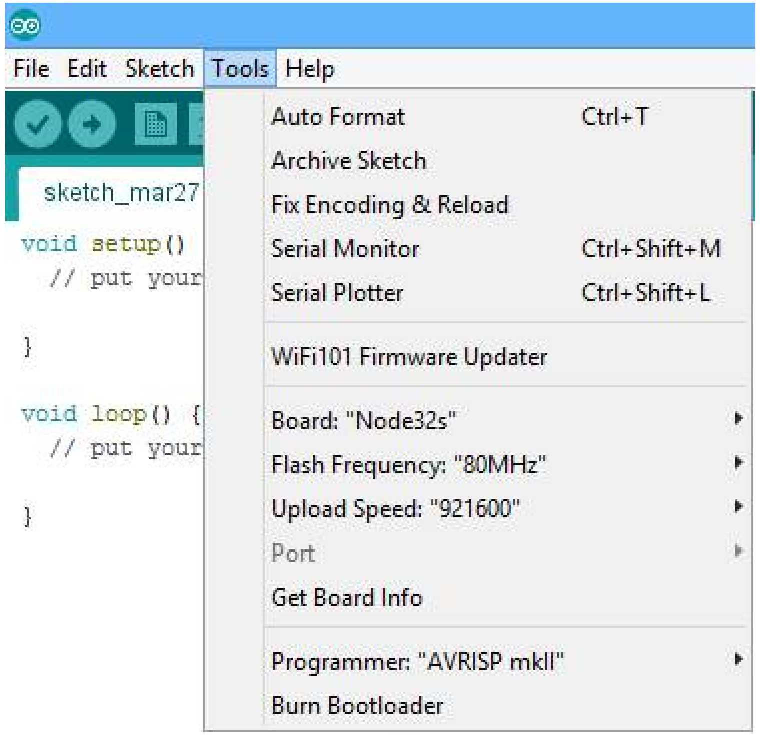
updated



```
C:\Users\admin>cd C:\Users\admin\Documents\Arduino\hardware\espressif\esp32

C:\Users\admin\Documents\Arduino\hardware\espressif\esp32>git pull origin master
From https://github.com/espressif/arduino-esp32
 * branch            master     -> FETCH_HEAD
Already up-to-date.

C:\Users\admin\Documents\Arduino\hardware\espressif\esp32>
```

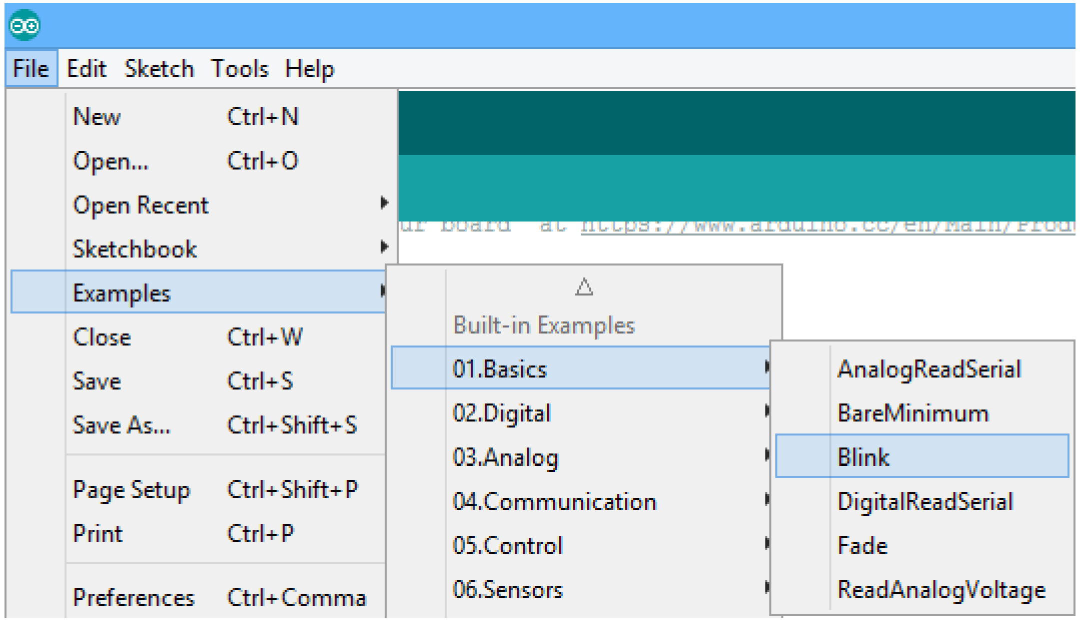
- Git CMD
- cd C:\Users\[YOUR_USER_NAME]\Documents\Arduino\hardware\espressif\esp32
- git pull origin master

Tools > Board: “Node32s”

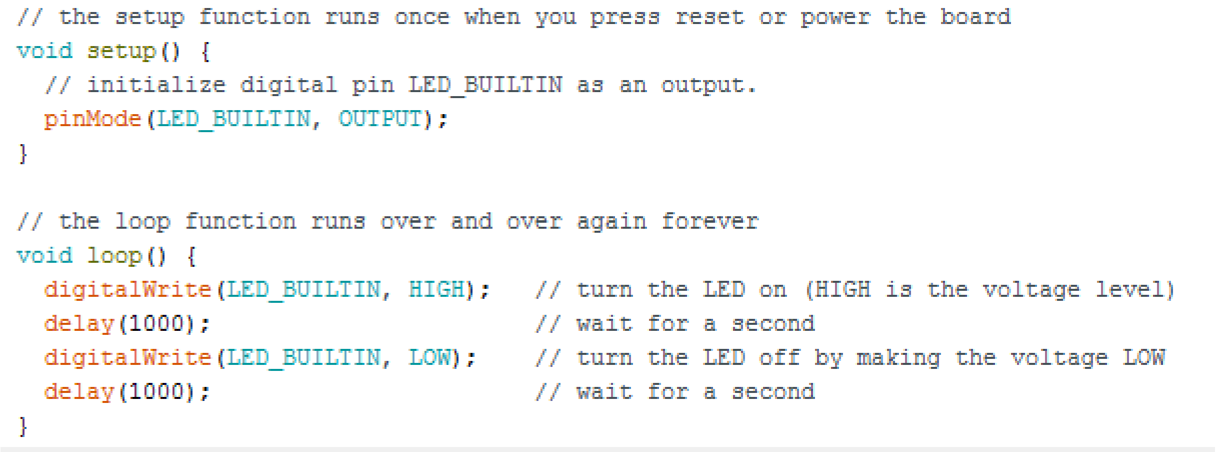


```
void setup() {
  // put your

}

void loop() {
  // put your

}
```

File > Examples > 01.Basics > Blink

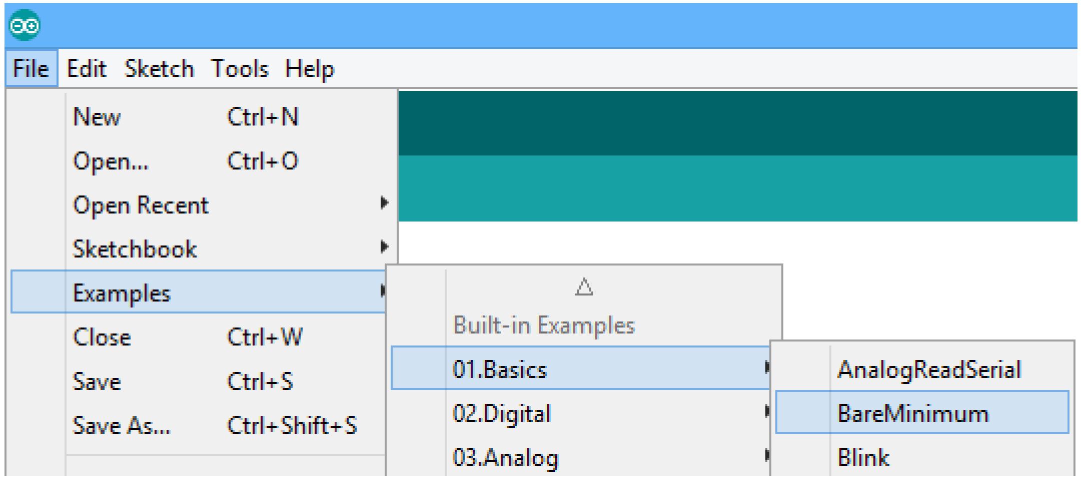


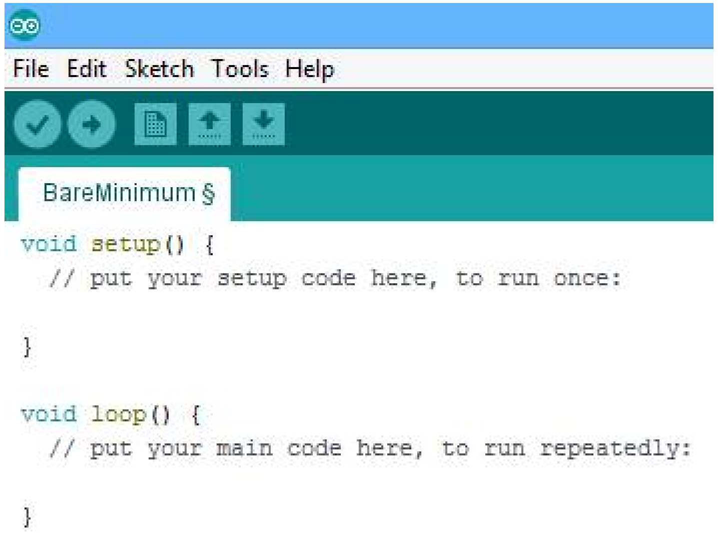
LED_BUILTIN = 2



```
// the setup function runs once when you press reset or power the board
void setup() {
  // initialize digital pin LED_BUILTIN as an output.
  pinMode(LED_BUILTIN, OUTPUT);
}

// the loop function runs over and over again forever
void loop() {
  digitalWrite(LED_BUILTIN, HIGH);   // turn the LED on (HIGH is the voltage level)
  delay(1000);                       // wait for a second
  digitalWrite(LED_BUILTIN, LOW);    // turn the LED off by making the voltage LOW
  delay(1000);                       // wait for a second
}
```

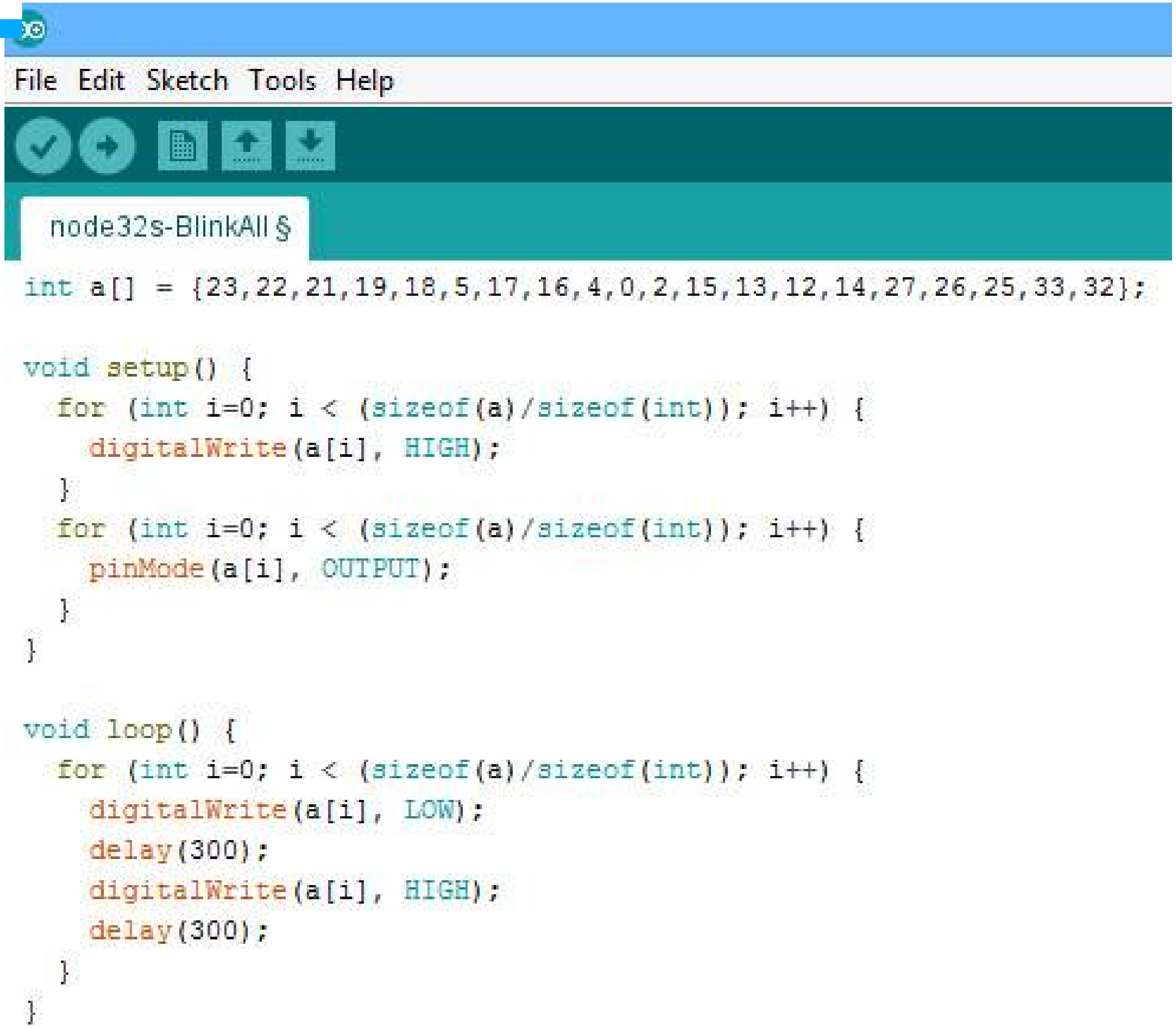
File > Examples > 01.Basics > BareMinimum





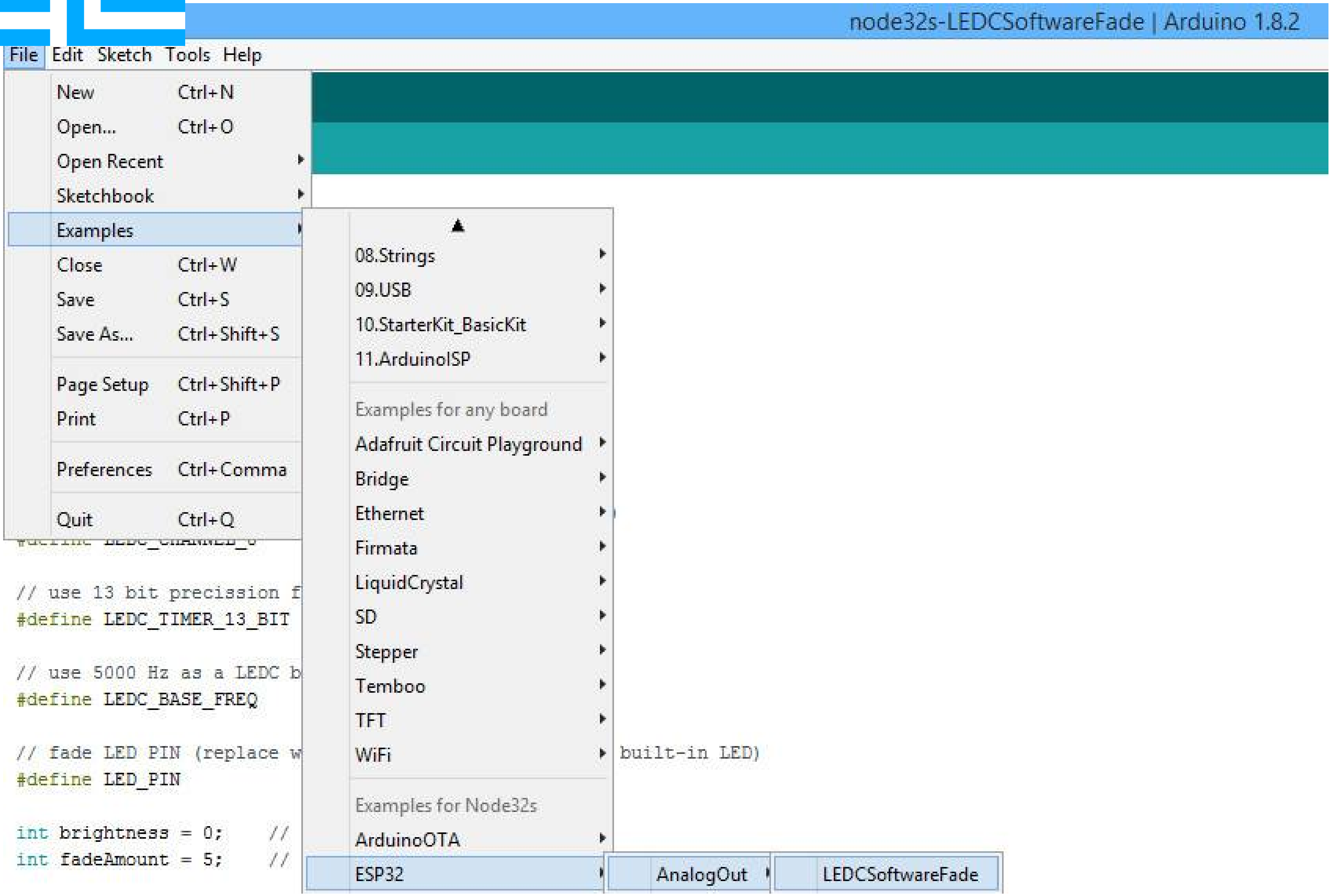
```
void setup() {
  // put your setup code here, to run once:

}

void loop() {
  // put your main code here, to run repeatedly:

}
```

BlinkAll

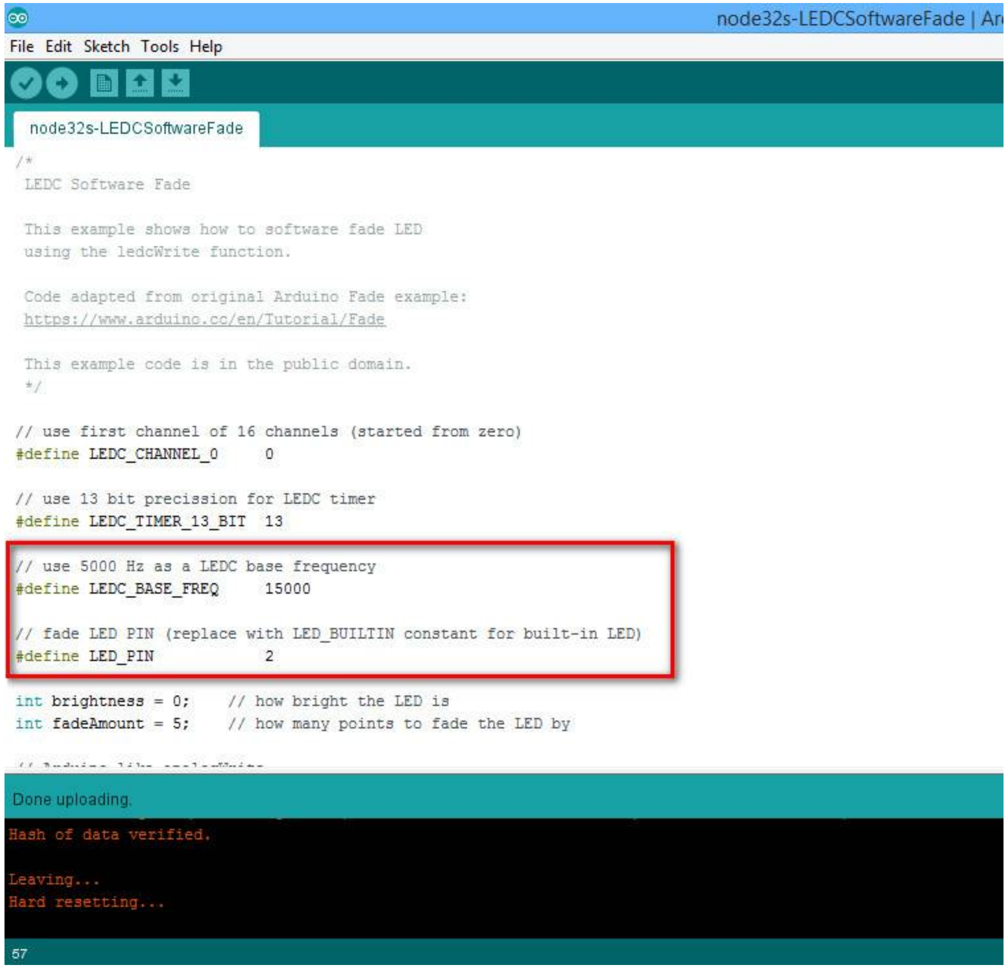


```
int a[] = {23,22,21,19,18,5,17,16,4,0,2,15,13,12,14,27,26,25,33,32};

void setup() {
  for (int i=0; i < (sizeof(a)/sizeof(int)); i++) {
    digitalWrite(a[i], HIGH);
  }
  for (int i=0; i < (sizeof(a)/sizeof(int)); i++) {
    pinMode(a[i], OUTPUT);
  }
}

void loop() {
  for (int i=0; i < (sizeof(a)/sizeof(int)); i++) {
    digitalWrite(a[i], LOW);
    delay(300);
    digitalWrite(a[i], HIGH);
    delay(300);
  }
}
```

File > Examples > ESP32 > AnalogOut > LEDCSoftwareFade



```
#define LEDC_CHANNEL_0

// use 13 bit precission f
#define LEDC_TIMER_13_BIT

// use 5000 Hz as a LEDC b
#define LEDC_BASE_FREQ

// fade LED PIN (replace w                      built-in LED)
#define LED_PIN

int brightness = 0;    //
int fadeAmount = 5;    //
```



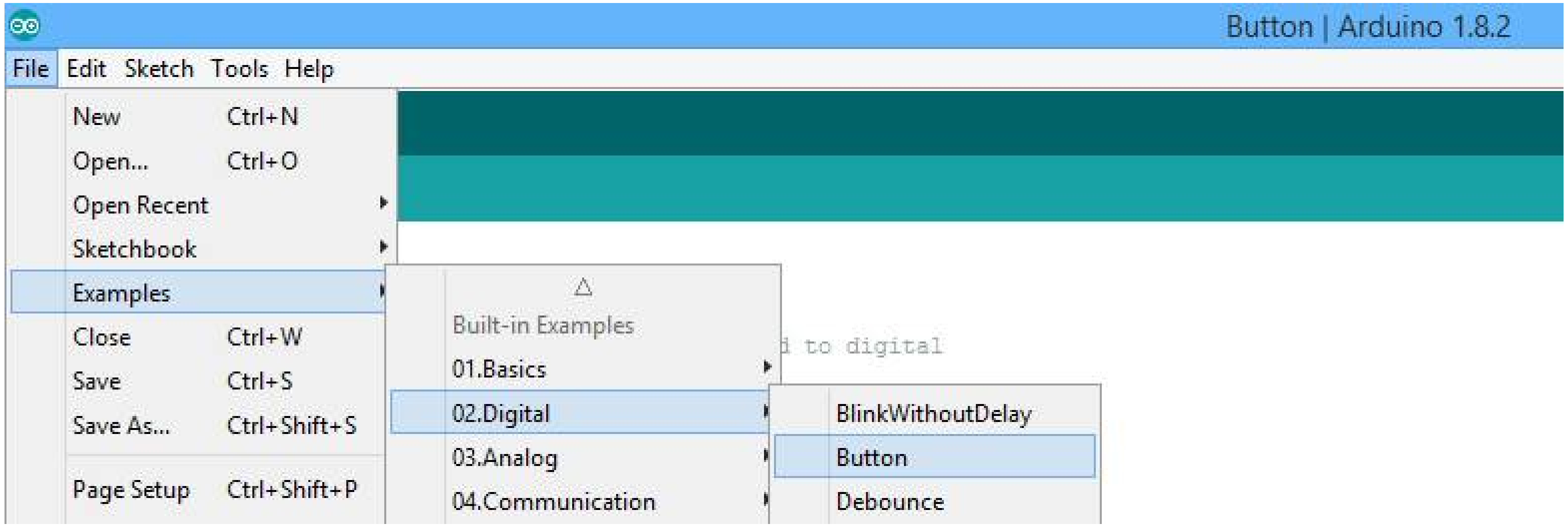
```
/*
 LEDC Software Fade

 This example shows how to software fade LED
 using the ledcWrite function.

 Code adapted from original Arduino Fade example:
 https://www.arduino.cc/en/Tutorial/Fade

 This example code is in the public domain.
 */

// use first channel of 16 channels (started from zero)
#define LEDC_CHANNEL_0     0

// use 13 bit precission for LEDC timer
#define LEDC_TIMER_13_BIT  13

// use 5000 Hz as a LEDC base frequency
#define LEDC_BASE_FREQ     15000

// fade LED PIN (replace with LED_BUILTIN constant for built-in LED)
#define LED_PIN            2

int brightness = 0;    // how bright the LED is
int fadeAmount = 5;    // how many points to fade the LED by

// Arduino like analogWrite
```

Done uploading.

```
Hash of data verified.

Leaving...
Hard resetting...
```

```
#define LEDC_BASE_FREQ     15000
#define LED_PIN            2
```

File > Examples > 02.Digital> Button



```
const int buttonPin = 0;
const int ledPin =  2;
```

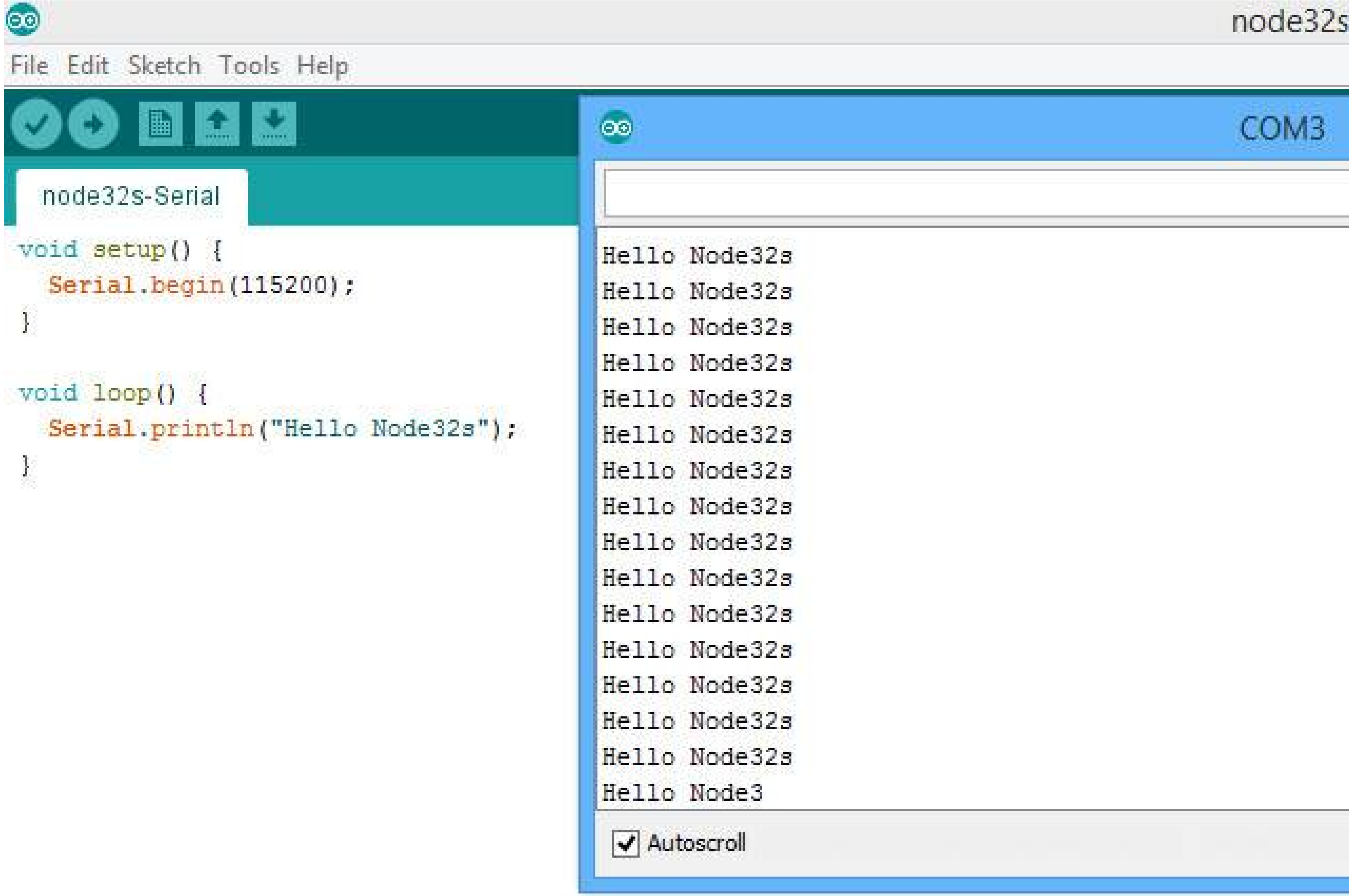
กดปุ่มไฟสว่าง ปล่อยปุ่มไฟดับ

แบบฝึกหัด

1. กดปุ่มไฟสว่าง ปล่อยปุ่มไฟดับ
2. กดปุ่มไฟดับ ปล่อยปุ่มไฟสว่าง
3. กดปุ่มไฟสว่าง ปล่อยปุ่มไฟสว่าง

กดปุ่มไฟดับ ปล่อยปุ่มไฟดับ

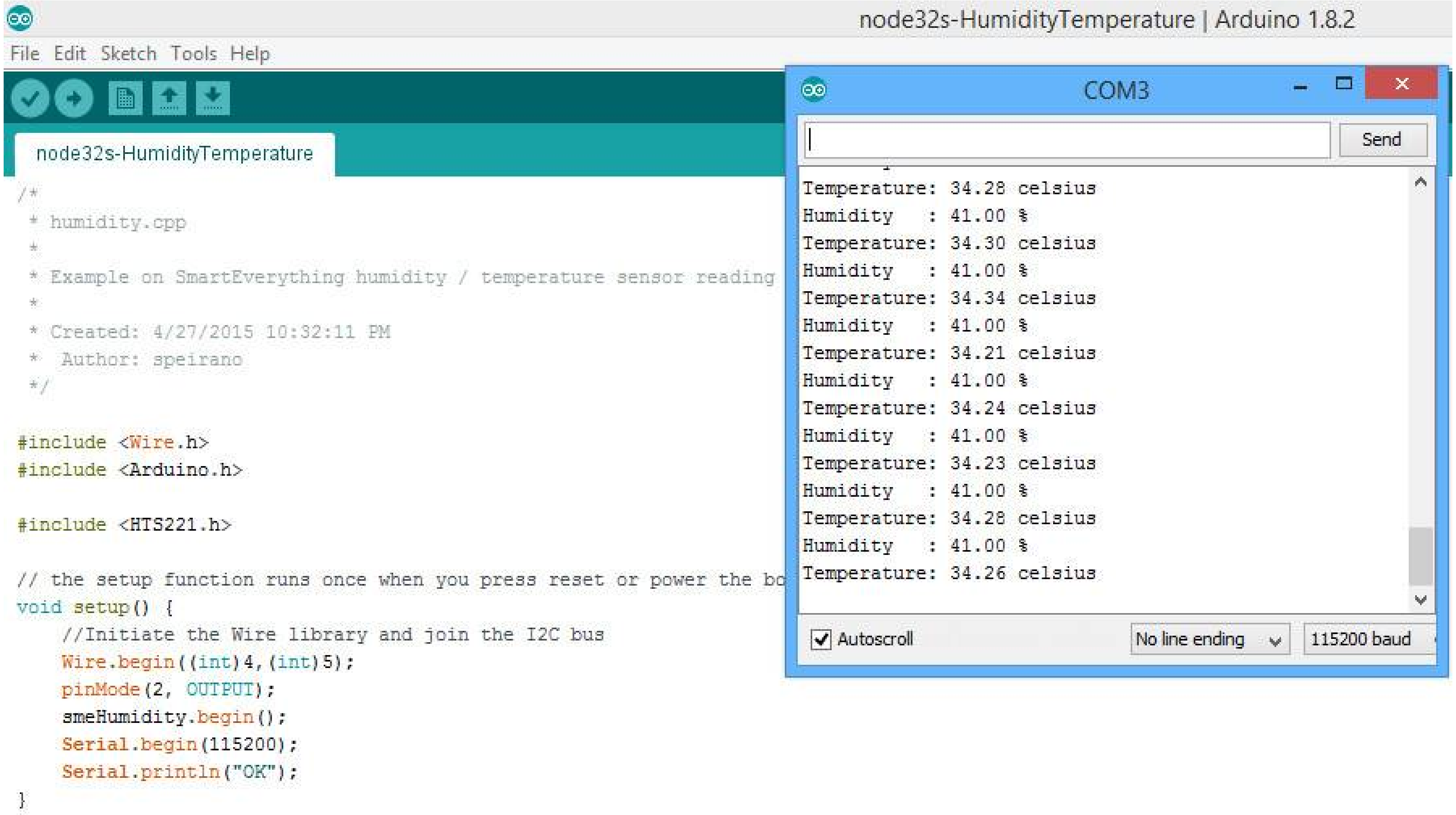
Serial



```
void setup() {
  Serial.begin(115200);
}

void loop() {
  Serial.println("Hello Node32s");
}
```

```
Hello Node32s
Hello Node32s
Hello Node32s
Hello Node32s
Hello Node32s
Hello Node32s
Hello Node32s
Hello Node32s
Hello Node32s
Hello Node32s
Hello Node32s
Hello Node32s
Hello Node32s
Hello Node32s
Hello Node32s
Hello Node3
```

Humi & Temp

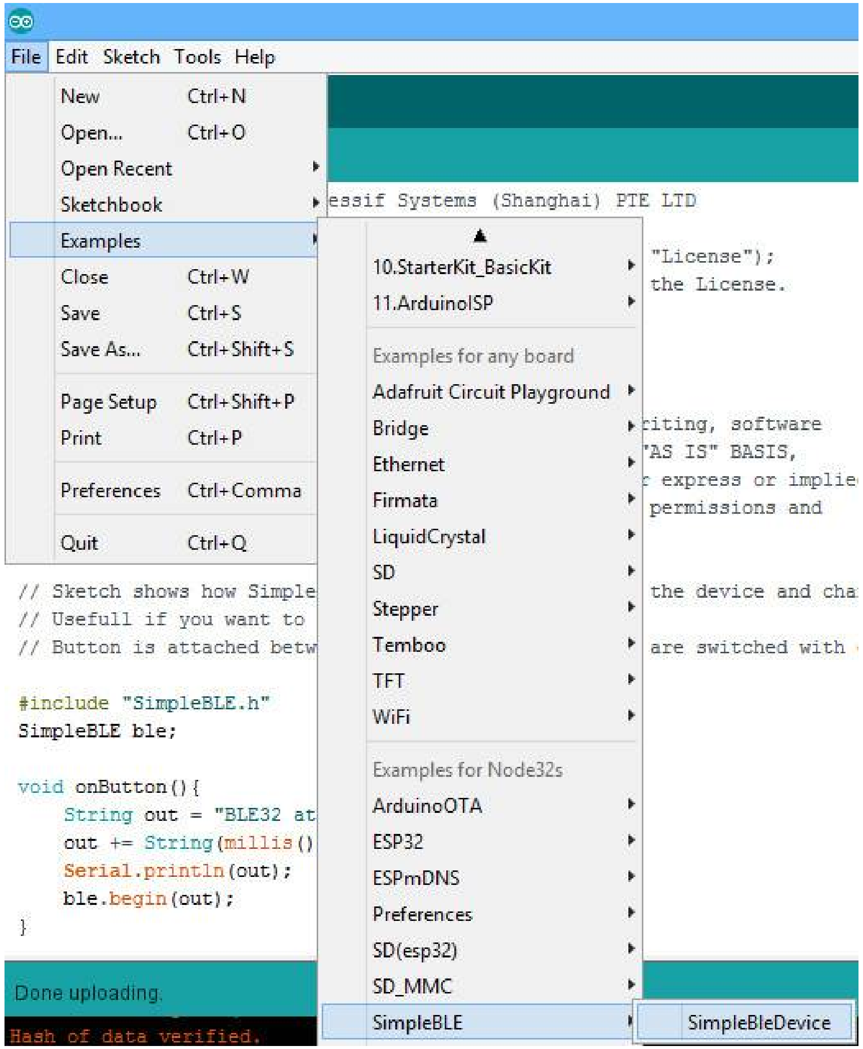


node32s-HumidityTemperature | Arduino 1.8.2
File Edit Sketch Tools Help
node32s-HumidityTemperature
COM3
Send
☑ Autoscroll
No line ending
115200 baud

```
/*
 * humidity.cpp
 *
 * Example on SmartEverything humidity / temperature sensor reading
 *
 * Created: 4/27/2015 10:32:11 PM
 *  Author: speirano
 */

#include <Wire.h>
#include <Arduino.h>

#include <HTS221.h>

// the setup function runs once when you press reset or power the bo
void setup() {
    //Initiate the Wire library and join the I2C bus
    Wire.begin((int)4,(int)5);
    pinMode(2, OUTPUT);
    smeHumidity.begin();
    Serial.begin(115200);
    Serial.println("OK");
}
```

```
Temperature: 34.28 celsius
Humidity   : 41.00 %
Temperature: 34.30 celsius
Humidity   : 41.00 %
Temperature: 34.34 celsius
Humidity   : 41.00 %
Temperature: 34.21 celsius
Humidity   : 41.00 %
Temperature: 34.24 celsius
Humidity   : 41.00 %
Temperature: 34.23 celsius
Humidity   : 41.00 %
Temperature: 34.28 celsius
Humidity   : 41.00 %
Temperature: 34.26 celsius
```

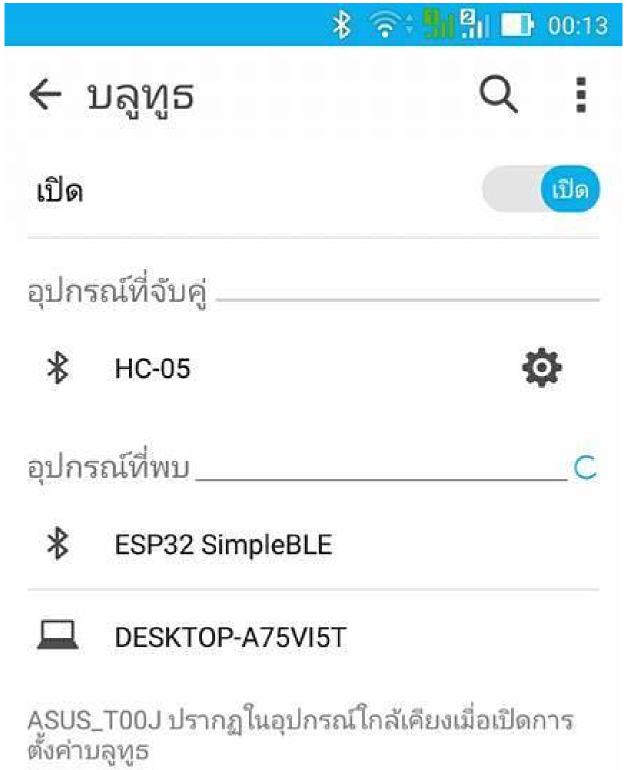
File > Examples > SimpleBLE > SimpleBleDevice



```
essif Systems (Shanghai) PTE LTD
"License");
the License.
riting, software
'AS IS" BASIS,
 express or implie
permissions and
// Sketch shows how Simple
// Usefull if you want to
// Button is attached betw
the device and cha
are switched with

#include "SimpleBLE.h"
SimpleBLE ble;

void onButton(){
    String out = "BLE32 at
    out += String(millis()
    Serial.println(out);
    ble.begin(out);
}
```

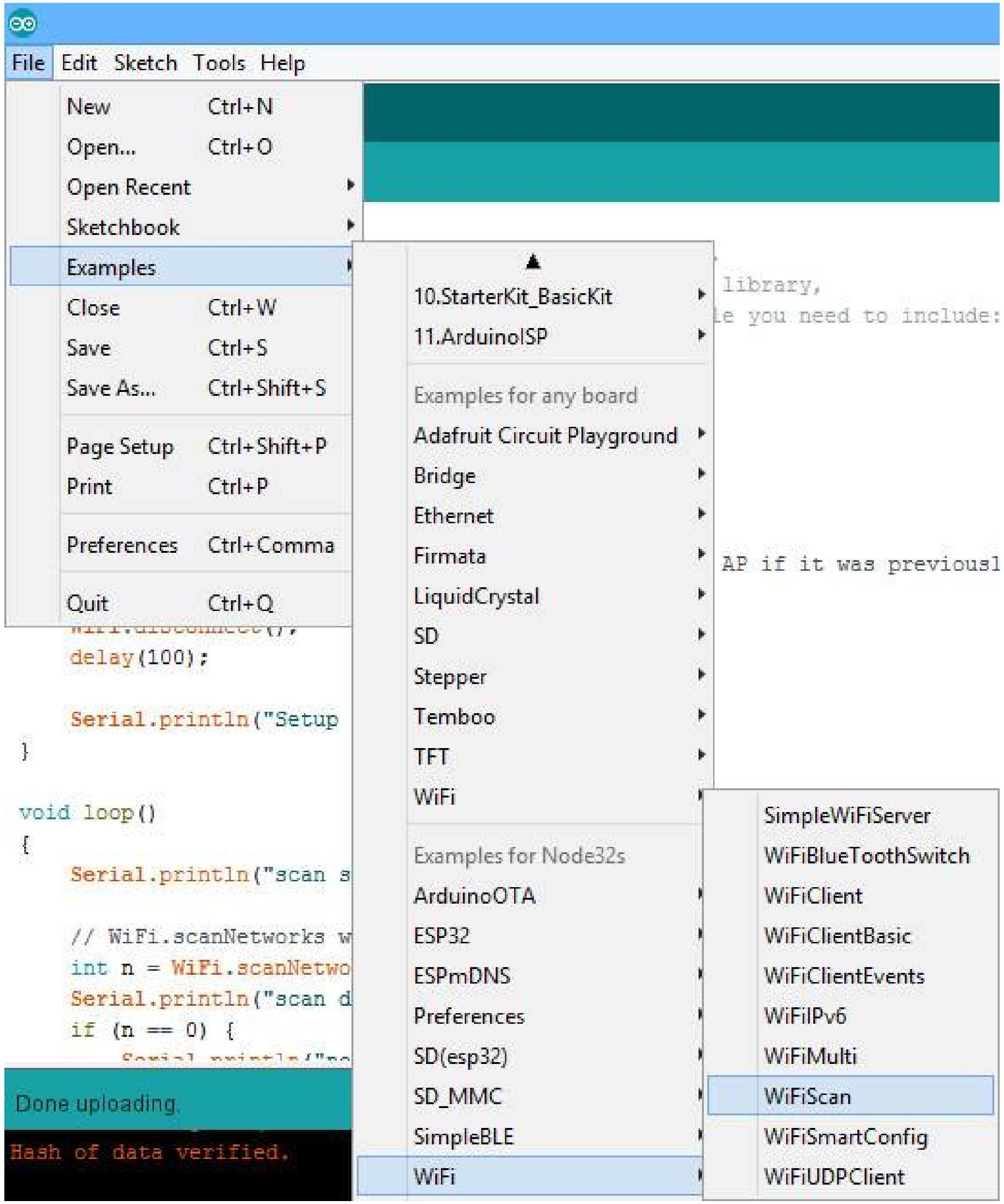
Done uploading.

Hash of data verified.



ASUS_T00J ปรากฏในอุปกรณ์ใกล้เคียงเมื่อเปิดการตั้งค่าบลูทูธ

File > Examples > WiFi > WiFiScan

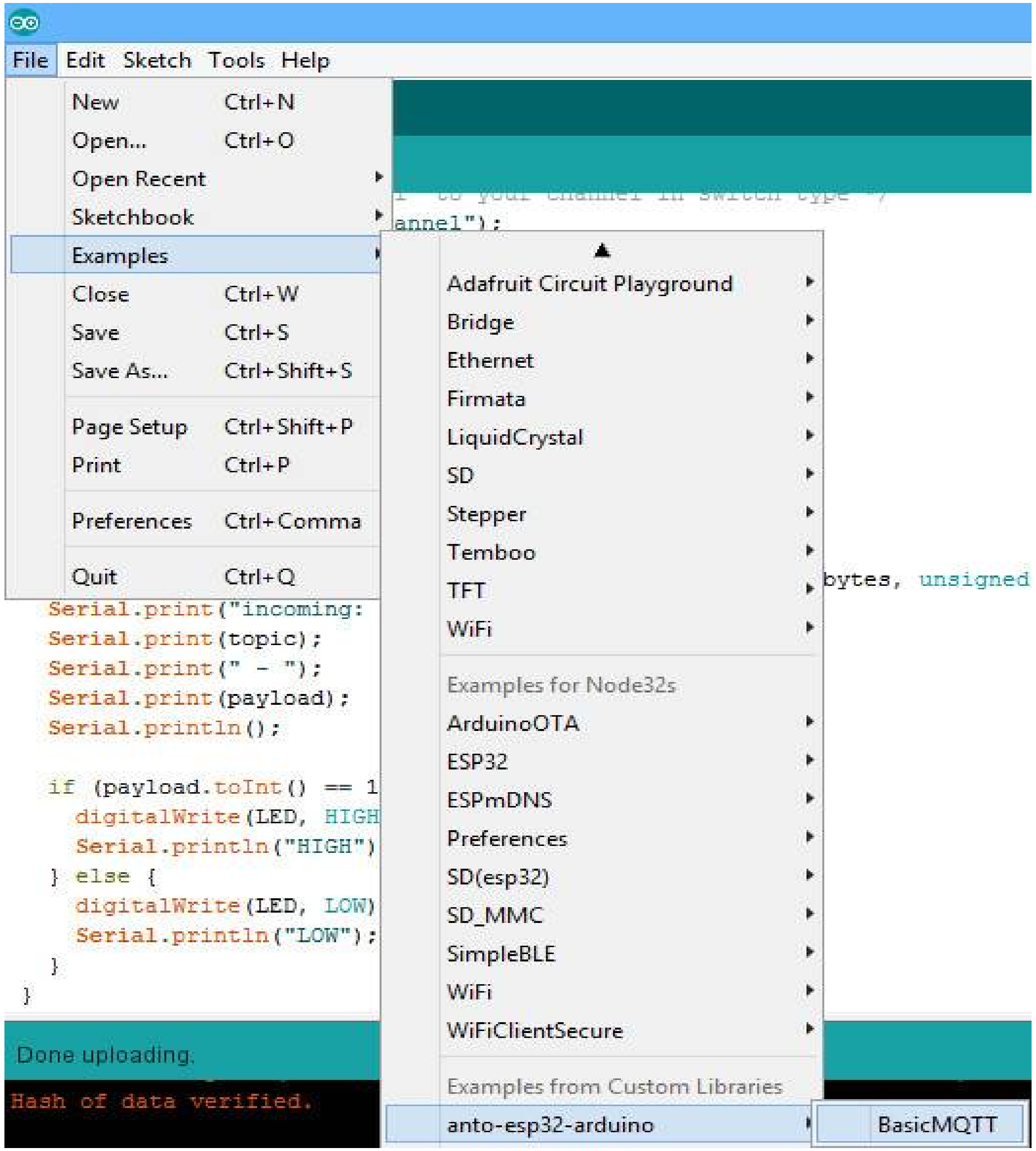


```
 library,
le you need to include:

AP if it was previousl

    delay(100);

    Serial.println("Setup
}

void loop()
{
    Serial.println("scan s

    // WiFi.scanNetworks w
    int n = WiFi.scanNetwo
    Serial.println("scan d
    if (n == 0) {
```

Done uploading.

```
Hash of data verified.
```

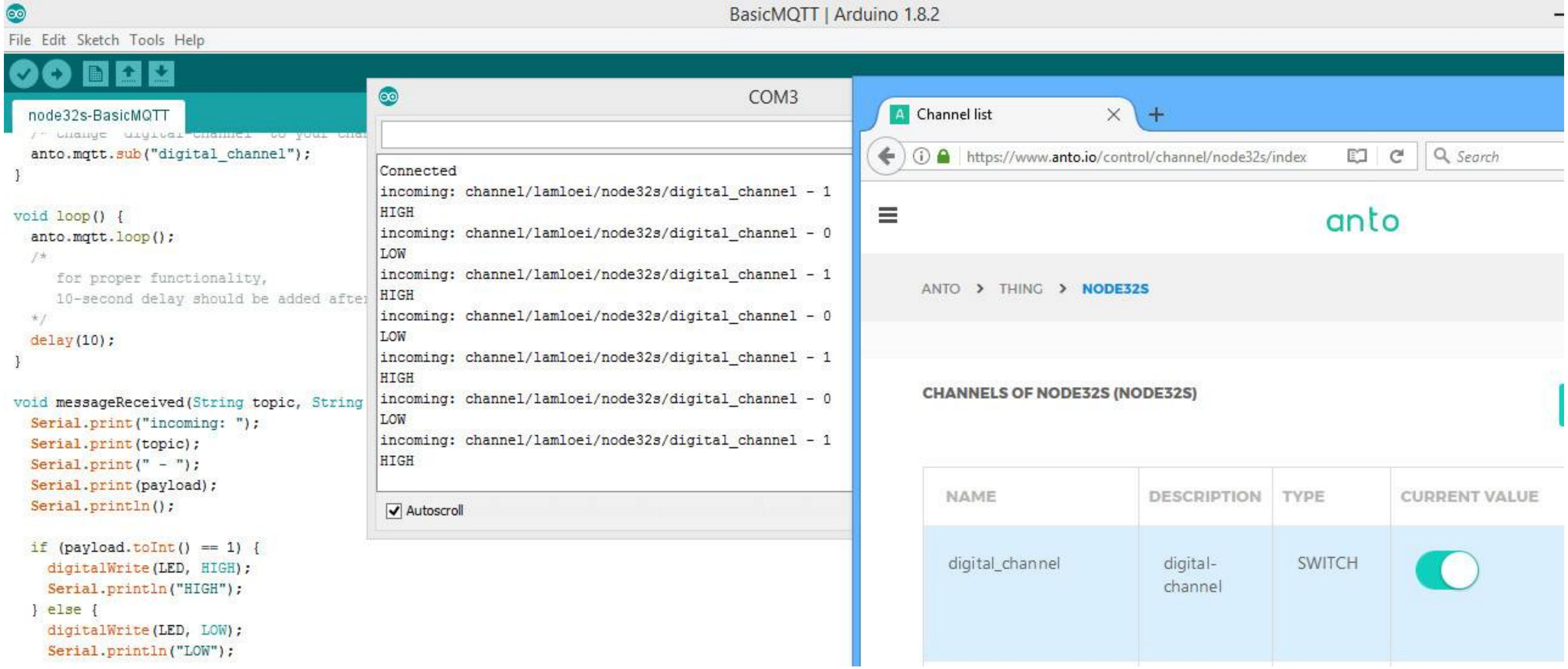
File > Examples > anto-esp32-arduino > BasicMQTT



```
1" to your channel in switch type */
annel");
                                                 bytes, unsigned
  Serial.print("incoming:
  Serial.print(topic);
  Serial.print(" - ");
  Serial.print(payload);
  Serial.println();

  if (payload.toInt() == 1
    digitalWrite(LED, HIGH
    Serial.println("HIGH")
  } else {
    digitalWrite(LED, LOW)
    Serial.println("LOW");
  }
}
```

```
Done uploading.
Hash of data verified.
```

1. เปิดบราวเซอร์ไปที่ https://www.anto.io
2. สมัครสมาชิกตามขั้นตอน
3. จะได้ userกับ key
4. สร้าง thing ชื่อ node32s
5. สร้าง channel ชื่อ digital_channel
6. จากนั้นแก้ไขแชนแนลเป็น Read Update
7. เปิดโค้ด BasicMQTT
8. ใส่ Ssid และ pass ของ WIFI
9. ใส่ค่าต่างๆ ของ anto
10. * digital_channel ควรเป็นขีดล่าง
11. Upload Code Basic MQTT
12. ทดสอบการสั่งงานปิดเปิดไฟผ่านเน็ต



```
  /* change "digital-channel" to your cha
  anto.mqtt.sub("digital_channel");
}

void loop() {
  anto.mqtt.loop();
  /*
     for proper functionality,
     10-second delay should be added after
  */
  delay(10);
}

void messageReceived(String topic, String
  Serial.print("incoming: ");
  Serial.print(topic);
  Serial.print(" - ");
  Serial.print(payload);
  Serial.println();

  if (payload.toInt() == 1) {
    digitalWrite(LED, HIGH);
    Serial.println("HIGH");
  } else {
    digitalWrite(LED, LOW);
    Serial.println("LOW");
```

```
Connected
incoming: channel/lamloei/node32s/digital_channel - 1
HIGH
incoming: channel/lamloei/node32s/digital_channel - 0
LOW
incoming: channel/lamloei/node32s/digital_channel - 1
HIGH
incoming: channel/lamloei/node32s/digital_channel - 0
LOW
incoming: channel/lamloei/node32s/digital_channel - 1
HIGH
incoming: channel/lamloei/node32s/digital_channel - 0
LOW
incoming: channel/lamloei/node32s/digital_channel - 1
HIGH
```

☑ Autoscroll

ANTO › THING › NODE32S

CHANNELS OF NODE32S (NODE32S)

NAME	DESCRIPTION	TYPE	CURRENT VALUE
digital_channel	digital-channel	SWITCH	●

โค้ดและตัวอย่าง

- https://github.com/lamloei
- https://www.facebook.com/lamloeicom